IN THE CLAIMS:

Amend Claims 21-23, 30, 34-36, 38, 40, 41, and 44-52 as follows and add Claims 53-55:

Claims 1-20. (Canceled).

21. (Currently amended) A device for detecting optical signals, comprising

means (10,11, 20, 80) structured and arranged for generating at least one reference light ray which has at least one of

(i) frequency shift or frequency modulation or both;

(ii) phase shift or phase modulation or both; and

(iii) time displacement, ~~over~~

all (i)-(iii) relating to the optical signal to be detected;

means (20, 30) structured and arranged for aligning at least one of the signals and reference light ray(s) such that they can be brought into interference; and

a detector (40) with a demodulator (50) being structured and arranged to detect amplitude modulation of a resulting signal from said interference;

wherein a wavelength-dependent element (11, 12, 14) is structured and arranged to change angle(s) of at least one of the optical signals and reference ~~rays~~ ray(s) being brought into interference depending upon wavelength; and

said detector (40) is structured and arranged to measure at least one of time and spatial modulation of intensity of at least part of cross-section of the resulting detected signal.

22. (Currently amended) A device for generating optical signals by modulation of optical carriers, comprising

means structured and arranged for generating at least one reference light ray which has at least one of

(i) frequency shift or frequency modulation or both;

(ii) phase shift or phase modulation or both; and

(iii) time displacement, ~~over~~

all (i)-(iii) relating to the optical signal to be ~~detected~~ modulated;

means structured and arranged for aligning the optical signal carrier and at least one of the reference light ray(s) such that they can be brought into interference; and

a coupler structured and arranged to ~~couple out~~ collect a resulting signal from said interference and directs the signal to a further optical transmission line where the resulting signal exhibits modulation;

wherein, a wavelength dependent element is structured and arranged to change angle(s) of at least one of the optical carrier and reference light ~~rays~~ ray(s) being brought into interference, depending upon wavelength; and

the ~~coupler~~ device is structured and arranged to make the thus coupled-out signal dependent upon at least one of time (amplitude modulation) or spatial modulation of intensity with reference to at least part of cross-section of the

resulting interference signal.

23. (Currently amended) A device in accordance with claim 22, wherein said generating means (10, 11, 20, 80) include a beam splitter and ~~at least one~~ of a frequency shifter or modulator~~, a phase shifter or modulator (20), and a travel distance (90)~~.

24. (Previously presented)A device in accordance with claim 21, wherein said generating means (10, 11, 20, 80) include a local light source.

25.(Previously presented) A device in accordance with claim 21, wherein said wavelength-dependent element (11, 12, 14) includes a diffracting optical element.

26. (Previously presented) A device in accordance with claim 25, wherein said diffracting optical element is at least one of an optical grating (11, 14), a hologram, or a system of thin films.

27. (Previously presented)A device in accordance with claim 21, wherein the wavelength-dependent element (12) is a dispersing optical element.

28. (Previously presented) A device in accordance with claim 27, wherein said dispersing optical element is a prism (12).

29. (Previously presented) A device in accordance with claim 21, wherein the wavelength-dependent element (11) is a beam splitter (11) or combiner.

30. (Currently amended) A device in accordance with claim 21, wherein the wavelength-dependent element (11, 12, 14) is structured and arranged to change type or degree of dependence of angle deflection by the ~~have a modifiable~~ wavelength ~~dependency of the deflection angle~~.

31. (Previously presented) A device in accordance with claim 21, wherein the wavelength-dependent element is simultaneously at least one of

(a) a frequency shifter, or frequency modulator,

(b) a phase shifter or phase modulator.

32. (Previously presented) A device in accordance with claim 31, wherein the wavelength-dependent element is structured and arranged as an acousto-optical modulator.

33. (Previously presented) A device in accordance with claim 21, additionally comprising

means for deflecting at least one of the reference light ray and optical signal.

34.(Currently amended) A device for detecting optical signals, comprising

means (10, 11, 20, 80) structured and arranged for generating at least one reference light ray which has at least one of

(i) frequency shift or frequency modulation or both;

(ii) phase shift or phase modulation or both; and

(iii) time displacement, ~~over~~

all (i)-(iii) relating to the optical signal to be detected;

means (20, 30) structured and arranged for aligning at least one of the optical signals and reference light ray(s) such that they can be brought into interference; and

a detector (40) with a demodulator (50) structured and arranged to detect amplitude modulation of a resulting signal from said interference;

wherein a wavelength-dependent element (11, 12, 14) is structured and arranged to change angle(s) of at least one of the optical signals and reference ~~rays~~ ray(s) being brought into interference depending upon wavelength;

the detector (40) is structured and arranged to measure at least one of time and spatial modulation of intensity with reference to at least part of cross-section of the resulting detected signal; and

the wavelength-dependent element (11, 12, 14) is structured and arranged to be at least one of rotatable or tiltable.

35. (Currently amended) A device for detecting optical signals, comprising

means (10, 11, 20, 80) structured and arranged for generating at least one reference light ray which has at least one of

(i) frequency shift or frequency modulation or both;

(ii) phase shift or phase modulation or both; and

(iii) time displacement, ~~over~~

all (i)-(iii) relating to the optical signal to be detected;

means (20, 30) structured and arranged for aligning at least one of the optical signals and reference light ray(s) such that they can be brought into interference;

a detector (40) with a demodulator (50) structured and arranged to detect amplitude modulation of a resulting signal from said interference;

wherein a wave-length dependent element (11,12, 14) is structured and arranged to change angle(s) of at least one of the optical signals

and reference ~~rays~~ ray(s) being brought into interference depending upon the wavelength;

the detector (40) is structured and arranged to measure at least one of time and spatial modulation of intensity with reference to at least a part of cross-section of the resulting detected signal; and

additionally comprising at least one of a multiplex hologram and other optical elements structured and arranged for simultaneously handling multiple rays.

36. (Currently amended) A device for detecting optical signals, comprising

means (10, 11, 20, 80) structured and arranged for generating at least one reference light ray which has at least one of

(i) frequency shift or frequency modulation or both;

(ii) phase shift or phase modulation or both; and

(iii) time displacement, ~~over~~

all (i)-(iii) relating to the optical signal to be detected;

means (20, 30) structured and arranged for aligning at least one of the optical signals and reference light ray(s) such that they can be brought into interference;

a detector (40) with a demodulator (50) structured and arranged to detect amplitude modulation of a resulting signal from said interference;

wherein a wavelength dependent element (11, 12, 14) is structured and arranged to change angle(s) of at least one of the optical signals

and reference ~~rays~~ ray(s) being brought into interference depending upon wavelength,

the detector (40) is structured and arranged to measure at least one of time and spatial modulation of intensity with reference to at least part of cross-section of a resulting signal from said interference; and

said device being structured and arranged for handling multiple rays.

37. (Previously presented)The device in accordance with claim 36, additionally comprising

parts of said device being provided in multiple for handling the multiple rays.

38. (Currently amended) A device for detecting optical signals, comprising

means (10, 11, 20, 80) structured and arranged for generating at least one reference light ray which has at least one of

(i) frequency shift or frequency modulation or both;

(ii) phase shift or phase modulation or both; and

(iii) time displacement, ~~over~~

all (i)-(iii) relating to the optical signal to be detected;

means (20, 30) structured and arranged for aligning at least one of the optical signals and reference light ray(s) such that they can be brought into interference; and

a detector (40) with a demodulator (50) structured and arranged to detect amplitude modulation of a resulting signal from said interference;

wherein a wavelength-dependent element (11, 12, 14) is structured and arranged to change angle(s) of at least one of the optical signals and reference ~~rays~~ ray(s) being brought into interference depending upon wavelength;

of the detector (40) is structured and arranged to measure at least one of time and spatial modulation of intensity with reference to at least part of cross-section of the resulting detected signal; and

additionally comprising means structured and arranged for changing the ray cross-section of at least one of the rays involved.

39. (Previously presented) A device in accordance with claim 21, additionally comprising

means structured and arranged for providing at least one of spectral filtration, and spatial modulation of

at least one of phase and amplitude of at least one of said rays involved.

40. (Currently amended) A device for detecting optical signals, comprising

means (10, 11, 20, 80) structured and arranged for generating at least one reference light ray which has at least one of

(i) frequency shift or frequency modulation or both;

(ii) phase shift or phase modulation or both; and

(iii) time displacement, ~~over~~

all (i)-(iii) relating to the optical signal to be detected;

means (20, 30) structured and arranged for aligning at least one of the

optical signals and reference light ray(s) such that they can be brought into interference; and

a detector (40) with a demodulator (50) structured and arranged to detect amplitude modulation of a resulting signal from said interference;

wherein a wavelength-dependent element (11, 12, 14) is structured and arranged to change angle(s) of at least one of the optical signals and reference ~~rays~~ ray(s) being brought into interference depending upon wavelength;

a detector (40) is structured and arranged to measure at least one of time and spatial modulation of intensity with reference to at least part of cross-section of the resulting detected signal; and

additionally comprising at least one of (a) and (b):

(a) wave guides structured and arranged such that at least part of the rays involved are guided at least partially therethrough; and

(b) at least part of the wavelength-dependent element being formed by integrated optics.

41. (Currently amended) A device in accordance with claim 21, which is an optical receiver or ~~optical modulator, or~~ spectrometer.

42. (Previously presented) A device in accordance with claim 21, omitting a local oscillator.

43. (Previously presented) A device in accordance with claim 22, omitting a local oscillator.

44. (Currently amended) The device in accordance with claim 21,

structured and arranged for using a ray path of a Michelson interferometer, and comprising

a beam splitter (10),

a prism (12) structured and arranged as the wavelength dependent element,

a mirror (20) and means for shifting the same to constitute a phase modulator,

another mirror (30) pivotally provided to ~~adjust~~ select the wavelength to be detected,

the detector (40) structured and arranged to integrate intensity over the entire cross-section of the ray to be detected,

a lock- in amplifier as the demodulator (50), and

a modulator control (60) structured and arranged for controlling the first mirror (20) as the phase modulator.

45. (Currently amended) The device in accordance with claim 22, structured and arranged for using a ray path of a Michelson interferometer, and comprising

a beam splitter (10),

a prism (12) structured and arranged as the wavelength dependent element,

a mirror (20) and means for shifting the same to constitute a phase modulator,

another mirror (30) pivotally provided to ~~adjust~~ select the wavelength to

be detected,

the detector (40) structured and arranged to integrate intensity over the entire cross-section of the ray to be detected,

a lock-in amplifier as the demodulator (50), and

a modulator control (60) structured and arranged for controlling the first mirror (20) as the phase modulator.

46. (Currently amended) The device in accordance with claim 21, structured and arranged for using the ray path of a Mach-Zehnder interferometer, and comprising

a first beam splitter (11) structured and arranged as a diffracting optical element and forming the wavelength-dependent element,

a first mirror (20) and means for shifting the same to form a phase modulator,

a second mirror (30) being pivotally mounted for ~~adjusting~~ selecting the wavelength to be detected,

a second beam splitter (13) being structured and arranged as a combiner for bringing partial rays into interference,

two detectors (40, 40') structured and arranged for detecting the interference rays, to integrate the intensity over the whole cross-section of the detectors in each case,

a lock-in amplifier with differential input constituting the demodulator (50) and

a modular control (60) structured and arranged as said shifting means to

control the first mirror (20) as the phase modulator.

47. (Currently amended) The device in accordance with claim 22, structured and arranged for using the ray path of a Mach-Zehnder interferometer, and comprising

a first beam splitter (11) structured and arranged as a diffracting optical element and forming the wavelength-dependent element,

a first mirror (20) and means for shifting the same to form a phase modulator,

a second mirror (30) being pivotally mounted for ~~adjusting~~ selecting the wavelength to be detected,

a second beam splitter (13) being structured and arranged as a combiner for bringing partial rays into interference,

two detectors (40, 40') structured and arranged for detecting the interference rays, to integrate the intensity over the whole cross-section of the detectors in each case,

a lock-in amplifier with differential input constituting the demodulator (50) and

a modular control (60) structured and arranged as said shifting means to control the first mirror (20) as the phase modulator.

48. (Currently amended) A device in accordance with claim 21, structured and arranged for detecting one of partial rays delayed in time, such that there is a time shift between the reference and signal rays, comprising

means for providing the change in relative position between partial rays by providing time displacement of one of the partial rays,

a glass fiber (70) structured and arranged for guiding of an incident signal therethrough,

a first beam splitter (80) structured and arranged with glass fiber technology and through which the incident signal is guided subsequent to said glass fiber (70),

means for expanding one part of said signal,

a second beam splitter (13) through which said expanded signal is guided after a short period,

a mirror (30) pivotally mounted for ~~adjusting~~ selecting wavelength

to be detected

and guiding said expanded signal to said second beam splitter (13),

a travel distance (90) arranged for delaying the other part of the signal having passed through said first beam splitter (80),

means for expanding said other delayed ray and guiding the same to said second beam splitter (13),

a wavelength-dependent element (14) structured and arranged as a diffracting optical element for guiding said delayed and expanded ray to said second beam splitter (13) along said travel distance (90),

said second beam splitter (13), structured and arranged as a combiner for bringing said partial rays into interference with one another,

detectors (40, 40') structured and arranged for detecting said combined

rays, to integrate the intensity over the entire cross-section of the ray to be detected in each case, and

said demodulator (50) being electronic and having a varying design depending upon modulation type of the signal.

49. (Currently amended) A device in accordance with claim 22, structured and arranged for detecting one of partial rays delayed in time, such that there is a time shift between the reference and signal rays, comprising

means for providing the change in relative position between partial rays by providing time displacement of one of the partial rays,

a glass fiber (70) structured and arranged for guiding of an incident signal therethrough,

a first beam splitter (80) structured and arranged with glass fiber technology and through which the incident signal is guided subsequent to said glass fiber (70),

means for expanding one part of said signal,

a second beam splitter (13) through which said expanded signal is guided after a short period,

a mirror (30) pivotally mounted for ~~adjusting~~ selecting wavelength to be detected

and guiding said expanded signal to said second beam splitter (13),

a travel distance (90) arranged for delaying the other part of the signal having passed through said first beam splitter (80),

means for expanding said other delayed ray and guiding the same to said second beam splitter (13),

a wavelength-dependent element (14) structured and arranged as a diffracting optical element for guiding said delayed and expanded ray to second beam splitter (13) along said travel distance (90),

said second beam splitter (13), structured and arranged as a combiner for bringing said partial rays into interference with one another,

detectors (40, 40') structured and arranged for detecting said combined rays, to integrate the intensity over the entire cross-section of the ray to be detected in each case, and

said demodulator (50) being electronic and having a varying design depending upon modulation type of the signal.

50. (Currently amended) A device for detecting or generating optical signals, comprising

a source of a reference light ray,

a beam splitter (10) positioned downstream of said source to receive the reference light ray and split the same into two partial rays,

a prism (12) arranged on a side of the beam splitter (10) and as a wavelength-dependent element,

a first mirror (20) arranged on a side of said beam splitter (10) opposite said incoming reference ray, ~~and comprising~~

means for shifting the ~~same~~ first mirror (20) to serve as a phase modulator in reflecting a beam back the beam splitter (10),

a second mirror (30) pivotally arranged on a side of said prism (12) opposite said beam splitter (10) to reflect back and ~~adjust~~ select wavelength of a signal to be detected,

a detector (40) arranged on a side of said beam splitter (10) opposite said prism (12), said detector integrating intensity over a whole cross-section of the ray to be detected,

a lock-in amplifier arranged as a demodulator (50) and coupled to said detector (40), and

a modulator control (60) coupled to both said demodulator (50) and first mirror (20) to act as said shifting means to control the first mirror (20) as the phase modulator.

51. (Currently amended) A device for detecting or generating optical signals, comprising

a source of a reference light ray,

a first beam splitter (11) arranged downstream of said source to split the light ray into two partial rays, said first beam splitter (11) arranged as a diffracting element and wavelength dependent element,

a first mirror (20) arranged downstream of said first beam splitter (10) on a side thereof opposite said incoming rays ~~and comprising~~

means for shifting the ~~same~~ first mirror(20) to reflect and phase modulate a first one of said partial rays,

a second mirror (30) pivotally positioned downstream of said beam splitter (11) to reflect a second one of said partial rays and ~~adjust~~ select wavelength of the ray to be detected,

the ray to be detected,

a second beam splitter (13) arranged downstream of said first (20) and second (30) mirrors to combine the partial rays in interference,

two separate detectors (40,40') arranged downstream of said second beam splitter (13) on a side thereof opposite said incoming partial rays, each said detector (40, 40') integrating intensity over an entire cross-section of a respective ray being detected,

a lock-in amplifier arranged as a demodulator (50) and coupled to each said detector (40, 40'), and

a modulator control (60) coupled to both said demodulator (50) and first mirror (20) to act as said shifting means to control the first mirror (20) as the phase modulator.

52. (Currently amended) A device for detecting or generating an optical signal, comprising

a source of a reference light ray,

a glass fiber (70) arranged to receive and guide an incident signal of the ray therethrough,

a first beam splitter (80) being positioned downstream of said fiber (70) from said incident signal and comprising glass fiber technology to split the incident signal into two partial signals,

first means for expanding a first one of said partial signals and positioned downstream of said first beam splitter (80),

a mirror (30) positioned downstream of said first expanding means and pivotally arranged to ~~adjust~~ select wavelength of said first partial signal to be detected,

a travel distance (90) arranged downstream of said first beam splitter (80) for receiving and delaying a second one of said partial signals,

second means for expanding the second one of said partial signals after passing along said travel distance (90),

a wave length dependent element (14) positioned downstream of said second expanding means,

a second beam splitter (13) arranged downstream of said mirror (30) and wavelength dependent element (14), to combine said partial signals in interference,

two separate detectors (40, 40') arranged downstream of said second beam splitter (13) on a side thereof opposite said incoming partial signals, each said detector (40,40') integrating intensity over an entire cross-section of a respective signal being detected, and

a demodulator (50) coupled to both said separate detectors (40,40').

53.(new) A device in accordance with claim 21, which is an optical modulator.

54.(new) A device in accordance with claim 21, wherein

said device is structured and arranged to receive a wavelength-division multiplexed (WDM) communication signal carrying phase-modulated or frequency-modulated data, said WDM communication signal further comprising a

plurality of communication channels, each said channel designating by a respective wavelength;

said device is structured and arranged to allow heterodyne detection of a single optical channel with defined wavelength without spatial separation from other optical channels of different wavelength; and

said detector (40) with a demodulator (50) being structured and arranged to demodulate data from the detected channel.

55.(new) The device in accordance with claim 21, comprising, in combination

an interferometer as said means (20, 30),

means (60) for modulating one of the rays brought to superposition,

heterodyne detection means constituting said detector (40), and

said spectrally dispersive element (11, 12, 14) structured and arranged to change angle(s) of rays inside the interferometer (20, 30).